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## Number of Electrical and Electronics Engineering Student Undertaking Mini Projects during the Academic Year 2022-23

**Programme Name & Code: Electrical and Electronics Engineering &105**

| SL. No | Register Number | Name of the Students | Project Title |
|---|---|---|---|
| 1 | 912020105011 | SWATHI P | Smart Gas Stove for Kitchen Employing Safety and Reduction of Gas Wastage |
| 2 | 912020105002 | DHANA PRAKASH M | |
| 3 | 912020105003 | DHARINI SHRI D | |
| 4 | 912020105005 | DINESH KUMAR L | |
| 5 | 912020105006 | GOPI P | Generating Electricity from Combustion of Municipal Solid Waste |
| 6 | 912020105007 | GURU PRASATH V | |
| 7 | 912020105302 | MOHANASUNDARAM K | |
| 8 | 912020105301 | AJAYSETHUPATHI S | |
| 9 | 912020105008 | PRIYADHARSHINI M | Smart Street Light System Looking Like Usual Street Lights Based on Sensor Networks |
| 10 | 912020105305 | SATHYA R | |
| 11 | 912020105010 | SANTHOSHINI B | |
| 12 | 912020105001 | BOSE S | |
| 13 | 912020105009 | SANJAY S | Smart Waste Water Treatment |
| 14 | 912020105012 | THANVEER AHAMED A | |
| 15 | 912020105304 | PRAKALATHAN A | |

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# EMPOWERING INTELLIGENT DEVICE AUTOMATION WITH SMART SWITCH CONTROL

A MINI PROJECT REPORT

*Submitted by*


| | |
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| D.DHARANISHRI | (912020105003) |
| L.DINESHKUMAR | (912020105005) |
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*In partial fulfillment for the award of the degree*

*Of*

*BACHELOR OF ENGINEERING*

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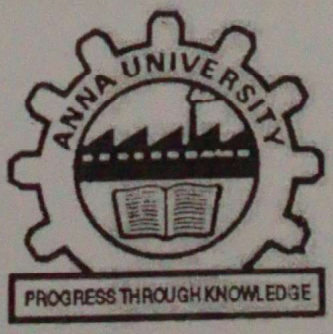



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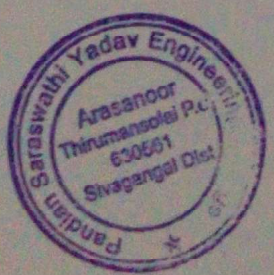
APRIL/MAY 2023

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## DECLARATION

We hereby declare that the work entitled "**EMPOWERING INTELLIGENT DEVICE AUTOMATION WITH SMART SWITCH CONTROL**" is submitted in partial fulfillment of the requirement award of the degree in B.E., Anna University of technology Chennai, is a record of the my own work carried out by me during the academic year 2020-2024 under the supervision and guidance of Mrs. S. PANDIMEENA, M.E Department of ELECTRICAL AND ELECTRONICS ENGINEERING, PANDIAN SARASWATHI YADAV ENGINEERING COLLEGE. The extent and source of information are derived from the existing literature and have been indicated through the dissertation at the appropriated places. The matter embodied in this work is original and has not been submitted for the award of any other degree or diploma, either in this or any other university.

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# CHAPTER 5

## CONCLUSION

In conclusion, the project "Empowering Intelligent Device Automation with Smart Switch Control" has successfully developed and implemented an advanced automation system that harnesses the power of smart switches and IoT technologies. The system enables users to remotely monitor and control various devices in their homes or offices, offering convenience, energy efficiency, and an enhanced user experience. Through the integration of smart switches, IoT sensors, and intelligent control algorithms, the system automates device operations based on user preferences and environmental conditions. The testing and evaluation phase demonstrated the system's functionality, reliability, and performance, highlighting its responsiveness, accuracy, and power efficiency. The project's achievements signify the potential impact of intelligent device automation, offering benefits such as energy savings and improved user control. As a result, this project sets the foundation for future enhancements, including voice commands, machine learning algorithms, and expanding device compatibility, further advancing the field of smart home automation.

# ABSTRACT

Automation is a popular topic in the twenty-first century, and it has become an indispensable part of everyday life. But still there is a lack of automation techniques in intelligence automation ads control of switches. The aim of the project is to empower users with advanced automation capabilities by integrating smart switches and Internet of Things (IoT) technologies. This project report presents the implementation and benefits of an intelligent device automation system that utilizes smart switch control. The report highlights the growing demand for smart home automation solutions and explores the potential advantages they offer in terms of convenience, energy efficiency, and improved user experience. It provides an overview of existing research and technologies related to smart switch control and IoT-based automation systems. The report details the design and architecture of the system, including the hardware components like smart switches and IoT sensors, as well as the software components such as the IoT platform, data processing algorithms, and user interface. The implementation process is discussed, covering aspects like communication protocols, device integration, and control algorithms. Testing and evaluation are conducted to assess the system's functionality, reliability, and performance. The report concludes by summarizing the achievements of the project and discussing the potential impact of the intelligent device automation system in terms of energy savings, convenience, and enhanced user control. Overall, this project demonstrates the benefits and capabilities of empowering intelligent device automation through smart switch control and IoT technologies.


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# GENERATING ELETRICITY FROM COMBUSTION OF MUNICIPAL SOLID WASTE

A MINI PROJECT REPORT

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# DECLARATION

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# ABSTRACT

In the current year, shortages of the energy sources, changing the global climate, and world energy conflicts lead to negative effects on all levels of the society and threatened world stability was increasing These challenges can be decreasing the fossil fuel reserves to the growth of the world population, Global climate change, and increased in wastes levels (solid/liquid) and can be resulted to the electricity crisis. In several developing countries, the electricity crisis obstructs both socio-economic and technological sustainable evolution. Also, it leads to reducing job availability due to shutting down several industries or relocating to neighbouring countries to such an issue. The purpose of making this project is to generate electrical energy from waste materials like plastic, rubber, garbage, waste material, etc. and store that electrical energy in the battery through the circuit and use that electrical energy to operate the whole system. So, in this Project, we show successfully How to generate electricity by Waste Materials and Store electricity in Battery successfully.

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# SMART STREET LIGHT MONITORING USING IOT WITH AUTO FAULT DETECTION

A MINI PROJECT REPORT

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## ABSTRACT

India facing one of the major problems is maintenance of street lights. In India Street lights are maintained manually, it is found that there is wastage of power by operating the street lights due to manual operations like switch on the lights at day time. Due to that wastage of electricity will be occurred. The methods that are working on the maintenance of street lights are not effective. We all may notice that the street light illuminates continuously. Also light is glowing in some unnecessary areas for about 12 hours. It glows very brightly in the area during absence of person or vehicle. And the main thing we noticed was there will be lots of defective bulbs in the street light and it take some time to repair that problem. Andalso it is difficult to find which street light is in defective state. And man power is required to identify that problem. By that man power also lots of confusion in identifying the defective bulbs. Our idea will give solution for all the above mentioned problems. The Objective of the project is to provide the Smart Street Light Monitoring using IoT. Monitoring means it focus on automatic control, intensity variation and fault detection. The lighting system which targets the energy and automatic operation on economical affordable for the streets and immediate information response about the street lamp fault. Moreover, errors which occur due to manual operation can also eliminate. IoT means Internet of Things. The Internet of things is a system of interrelated computing devices, mechanical and digital machines provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. Every IoT device needs a medium for communication. Here we are using wireless medium for communication. The IoT device collects the data and pass it to the IoT server and we can access that datas at any time. The street light system is checking the weather for street lamp ON/OFF condition. The street light monitoring is viewed through phone and computer.



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# CHAPTER 5

## CONCLUSION AND FUTURE WORK

This project "Smart Street Light Monitoring using IoT" is a cost effective, practical, eco-friendly and the safest way to save energy and this system the light status information can be accessed from anytime and anywhere. It clearly tackles the two problems that world is facing today, saving of energy and also identification of faulty lights, very efficiently. Initial cost and maintenance can be the draw backs of this project. With the advances in technology and good resource planning the cost of the project can be cut down and also with the use of good equipment the maintenance can also be reduced in terms of periodic checks. The LEDs have long life, emit cool light, donor have any toxic material and can be used for fast switching. The project has scope in various other applications like for providing lighting in industries, campuses and parking lots of huge shopping malls.

For future work we are using the new technology called LoRaWAN. LoRaWAN means ng range wide area network. It is a long range low power consuming technology. Every IoT evice needs a medium for communication. Here LoRaWAN act as a medium for mmunication. The process of LoRa is first the node will be present then gateway will be esent and server and finally datas are frequently monitored using mobile or computer. The nfiguration of our project is Master-Slave configuration. Here the node part act as slave d gateway part acts as master. The node is nothing but the application we are using. In this oject each lights in the street act as each node. The datas from node that is light datas are ssed to the gateway through LoRa technology. And the gateway pass the datas to the IoT ver and it is monitored in the devices. There are 2 types of gateway they are single channel d multi channel gateway. By using one single channel gateway we can connect upto 1000 des. This shows that it is cost friendly. We designed multi channel gateway and its image is en below. And its gateway ID is generated and that is also attached below. The server we using is The Things Network also called TTN.

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# SMART WASTE WATER PURIFIER

*A PROJECT REPORT*

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**S. SANJAY** **(Reg. 912020105009)** -

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# ABSTRACT

The waste water generated from the quarters, school hostel and college hostels in University campus were collected and analyzed. Conventional treatment method and the method of purification using Reed bed for the treatment of effluent were compared. The plant used for this purpose was Phragmitis australis which is locally known as NANAL. The experiment was conducted with the Primary treated sewage taken from the Sewage Treatment Plant (STP) of our campus. From the experiment it is found that the one with Reed Bed system gives a better quality treated water vis-à-vis the campus STP treated water. Hence, the filter bed of STP is planted with Phragmitis australis as a trial run. The project presents the method of construction of root zone bed and the effectiveness of removal of various contaminants using this root zone treatment process. The results for raw water and treated water samples were compared and discussed. Water levels are high in urban areas. water is wasted in many places. more water is wasted in places like house, hotel, hostel, factory & office. All the water is taken by water companies, so the water level in the basin, river and pond keeps decreasing. RO water usage in many diseases occur in woman & children.

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...sults show the concentrations of five parameters for wastewater treated ...y conventional treatment plant, root zone system and simple filter bed system. It is clear that the use of Reed bed system is best for the treatment of all parameters when compared to the other two. There is a remarkable reduction in pH, B.O.D, C.O.D by Reed bed treatment and the treated water has become fit enough to be let out directly into a receiving water body as the concentrations are below allowable limits. Thus the root zone treatment can be used independently or as an addition to conventional treatment so as to make the final output fit enough for discharge into a natural water body. A sudden change in values of TSS and BOD on Feb 20$^{th}$ and 25$^{th}$ are noted. This is due the fact those two days shows peak college activity combined with some amount of rainfall on 20$^{th}$ morning. A sudden Rise in values of COD on Feb 25$^{th}$ may be due to the discharge of chemicals from our college labs.

## CONCLUSION:

The waste water discharged in our campus setting was analyzed to determine characteristics. The wastewater from campus shows variation in concentration according to student's strength. TSS, BOD and COD particularly show a large temporal variation. The root zone method was employed on a lab scale to treat the waste water. The results were compared with the conventional treatment. It is seen that the root zone treatment can be utilized independently for a small scale unit or as an additional unit to conventional treatment system for complete treatment of waste water.

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